The Applications of Pattern-based Quantitative Approaches to Market Definition: An Example of Manufacturing Non-alcoholic Beverages in Taiwan

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Abstract

This paper introduces three commonly-used pattern-based quantitative approaches to market definition, including correlation analysis, the Granger causality test, and the stationarity test. We summarize the implementation procedures and list the limitations for each individual method. Price correlation analysis is usually used to measure whether the simultaneous adjustments of prices are in the same direction, and whether there is significant competition between two products in the same region or the same product in two regions. However, this method requires price series to be stationary, and common costs or seasonal adjustments may make it difficult to determine relevance. The causal test extends the vector autocorrelation model and applies the Granger causality test to capture and characterize the current and intertemporal relationships between two products. However, all variables in this analytical method are still limited to stationary series. When at least one of the price series is not stationary, a stationarity test can be used to determine whether these products or geographic regions belong to the same relevant market. This paper also applies these methods to the manufacture of non-alcoholic beverages (including vegetable juices, carbonated drinks, mineral water, sports drinks, coffee drinks, and tea drinks) from 1992/01 to 2018/04. Although the conclusions differ slightly according to the various methods used, comparing them might result in a more solid conclusion: these six types of beverages did not belong to the same market.

Keywords: Correlation Analysis, Vector Autoregressive Regression, Granger Causality Test, Stationary Test, Unit Root Tests, KPSS Test, Manufacture of Non-alcoholic Beverages.

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